IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An encoding data processing apparatus for generating at least one version of an original material item ~~of material~~ formed by combining one of a predetermined set of code words into a copy of the original material item, the apparatus comprising

a bandwidth adaptation processor ~~operable~~ configured to adapt a bandwidth of the code word with respect to ~~the~~ a part of bandwidth of the original material item, and

an encoder ~~operable~~ configured to combine the bandwidth adapted code word with a copy of the original material item, with an effect that the bandwidth adapted code word is combined with the part of the bandwidth of the original material item.

2. (Currently Amended) An encoding data processing apparatus as claimed in claim 1, wherein the bandwidth adaptation processor is ~~operable~~ configured to increase the bandwidth of the code word in accordance with a ratio of a reduced-bandwidth-version of the original material item to the part of the bandwidth of the original material item with which the code word is to be combined.

3. (Original) An encoding data processing apparatus as claimed in claim 1, wherein the bandwidth increase provided by the bandwidth adaptation processor is made in at least one of temporal or spatial domains.

4. (Currently Amended) An encoding data processing apparatus as claimed in claim 1, wherein the bandwidth adaptation processor comprises first and second adaptation processors,

the first adaptation processor ~~being operable~~ configured to increase the bandwidth of the code word in accordance with at least one of the temporal or spatial domains, and

the second adaptation processor ~~being operable~~ configured to form a reduced-bandwidth-version of the original material item, the bandwidth reduction being at least one of temporally or spatially effected and in accordance with the increase to the code word bandwidth by the first adaptation processor, wherein the encoder is ~~operable~~ configured to adapt coefficients of the code word with respect to the samples of the reduced-bandwidth-version of the original material item to which the code word coefficients are to be combined, the adaptation of the code word coefficients with respect to the reduced-bandwidth-version being made to the effect of reducing a likelihood of the code word being perceivable in ~~the~~ a marked representation of the original material item.

5. (Currently Amended) An encoding data processing apparatus as claimed in claim 4, wherein the first adaptation processor includes

a temporal up-sampler ~~operable~~ configured to introduce samples into the code word in accordance with an increased sampling rate, and

a low-pass filter ~~operable~~ configured to filter the up-sampled code word, wherein a bandwidth of the low-pass filter and the up-sampling rate has an effect of increasing the bandwidth of the code word with respect to the bandwidth corresponding to the original material item.

6. (Currently Amended) An encoding data processing apparatus as claimed in claim 4, wherein the first adaptation processor comprises

a spatial up-sampler ~~operable~~ configured to convert the bandwidth of the code word substantially to the spatial bandwidth of the original material item.

7. (Original) An encoding data processing apparatus as claimed in claim 6, wherein the spatial up-sampler operates to form the code word into a sub-band representing a wavelet transform sub-band and to perform an inverse wavelet transform on a set of sub-bands corresponding to a wavelet transform of the spatial bandwidth of the original material item, the other sub-bands being set to zero.

8. (Currently Amended) An encoding data processing apparatus as claimed in claim 4, wherein the second adaptation processor includes

a temporal sub-sampler ~~operable~~ configured to form the reduced-bandwidth-version of the original material item.

9. (Currently Amended) An encoding data processing apparatus as claimed in claim 8, wherein the temporal sub-sampler comprises a low-pass filter in combination with a sample selector ~~operable~~ configured to selectively sample the original material item after low-pass filtering.

10. (Currently Amended) An encoding data processing apparatus as claimed in claim 4, wherein the second adaptation processor includes

a spatial sub-sampler ~~operable~~ configured to form the reduced-bandwidth-version of the original material item.

11. (Currently Amended) An encoding data processing apparatus as claimed in claim 10, wherein the spatial sub-sampler comprises a wavelet transform processor ~~operable~~ configured to form a wavelet transform of the original material item and a sample selector

~~operable~~ configured to select one of a plurality of sub-bands of the wavelet transform to form the reduced-bandwidth-version of the original material item.

12. (Currently Amended) An encoding data processing apparatus as claimed in claim 1, comprising a code word generator ~~operable~~ configured to generate the code word using a pseudo-random number generator ~~initialised~~ initialized with a seed value uniquely associated with the code word, the code word coefficients being formed from numbers generated by the pseudo-random number generator.

13. (Currently Amended) An encoding data processing apparatus as claimed in claim 12, comprising

a discrete cosine transform processor ~~operable~~ configured to transform the original material item into the discrete cosine transform domain, the original material item in the discrete cosine transform domain being represented as a plurality of discrete cosine transform coefficients, wherein the encoder is ~~operable~~ configured to combine the bandwidth adapted code word with the original material item by adding each of the adapted code word coefficients to a corresponding one of the discrete cosine transform coefficients, and

an inverse discrete cosine transform processor ~~operable~~ configured to form [[the]] a marked version of the original material item by performing an inverse discrete cosine transform on the discrete cosine transformed material item to which the code word has been added by the encoder.

14. (Currently Amended) A detecting data processing apparatus ~~operable~~ configured to determine whether one or more code words of a predetermined set of code words is present in a suspected version of [[a]] an original material item, the suspected version having been

assumed to have been formed by combining a code word with part of the bandwidth of the original material item, said apparatus comprising

a bandwidth processor ~~operable~~ configured to form a reduced-bandwidth-version of a copy of the original material item and a reduced-bandwidth-version of the suspected version of the material, or a reduced-bandwidth-version of a difference between the original and suspect material items, the bandwidth reduction being arranged to isolate the part of the bandwidth of the material to which the code word may have been combined,

a recovery processor ~~operable~~ configured to generate a recovered code word from the reduced-bandwidth-versions of the original and suspect material items or reduced-bandwidth-version difference between the suspect and original material items,

a correlation processor ~~operable~~ configured to generate, for each of the code words in the predetermined set of code words a correlation value by correlating the recovered code word with each of the generated code words, and

a detection processor ~~operable~~ configured to detect one or more code words from the correlation value for the code word exceeding a predetermined threshold.

15. (Currently Amended) A detecting data processing apparatus as claimed in claim 14, comprising

a registering processor ~~operable~~ configured to associate samples of the original material item and the suspect version of the original material item to which corresponding code word coefficients may have been combined, the registration processor being ~~operable~~ configured in combination with the bandwidth adaptation processor to perform the association as part of the bandwidth reduction.

16. (Currently Amended) A detecting data processing apparatus as claimed in claim 14, wherein the code word has been introduced into the bandwidth of the suspect material item at least one of temporally or spatially and correspondingly the bandwidth adaptation processor is ~~operable~~ configured to perform the bandwidth reduction at least one of temporally or spatially.

17. (Currently Amended) A detecting data processing apparatus as claimed in claim 14, wherein the correlation processor includes a code word generator ~~operable~~ configured to generate pseudo-random numbers from which said regenerated code word coefficients are formed, the pseudo-random numbers being generated from a seed value uniquely associated with said code word.

18. (Currently Amended A detecting data processing apparatus as claimed in claim 17, wherein the seed value is formed from ~~the~~ samples of the marked version of the original material item.

19. (Currently Amended) A detecting data processing apparatus as claimed in claim 14, wherein the code word has been introduced into the original material item in the discrete cosine transform domain, the apparatus comprising

a discrete cosine transform processor ~~operable~~ configured to transform the suspected reduced-bandwidth-version of the original material item and the reduced-bandwidth-copy of the original material item into the discrete cosine transform domain, wherein the recovery processor is ~~operable~~ configured to generate the recovered code word by subtracting corresponding discrete cosine transform coefficients of the original material version from discrete cosine transform coefficients of the marked material version.

20. (Currently Amended) A system for identifying the recipient of a material item, the system comprising

an encoding data processing apparatus according to claim 1, and

a detecting data processor according to claim 14, ~~operable~~ configured to detect with a predetermined false positive probability the recipient by detecting the presence or absence of the code word in the material.

21. (Currently Amended) A method of generating at least one version of an original material item ~~of material~~, formed by introducing one of a predetermined set of code words into a copy of the original material item, the method comprising

adapting a bandwidth of the code word with respect to a part of bandwidth of the original material item, and

combining the bandwidth adapted code word with a copy of the original material item, with an effect that the bandwidth adapted code word is combined with the part of the bandwidth of the original material item.

22. (Currently Amended) A method as claimed in claim 21, wherein the adapting the bandwidth is increasing the bandwidth of the code word in accordance with a ratio of a reduced-bandwidth-version of the original material item to the bandwidth of the original material item or part thereof with which the code word is to be combined.

23. (Currently Amended) A method of determining whether one or more code words of a predetermined set of code words is present in a suspected version of a material item, the suspected version having been assumed to have been formed by combining a code word

having a lower-bandwidth with respect to ~~the~~ a part of bandwidth of ~~the~~ an original material item, the method comprising

forming a reduced-bandwidth-version of a copy of the original material item and a reduced-bandwidth-version of the suspected version ~~of the material~~, or a reduced-bandwidth-version of a difference between the original material item and the suspected version ~~suspect material items~~, the bandwidth reduction being arranged to isolate the part of the bandwidth of the original material item to which the code word may have been combined,

generating a recovered code word from the reduced-bandwidth-versions of the original material item and the suspected version, ~~suspect material items~~ or the reduced-bandwidth-version of the difference between the ~~suspect and~~ original material ~~items~~ item and the suspected version,

generating for each of the code words in the predetermined set of code words a correlation value by correlating the recovered code word with each of the generated code words, and

detecting one or more code words from the correlation value for the code word exceeding a predetermined threshold.

24-25. (Canceled)

26. (Currently Amended) A computer readable medium encoded with a computer program providing computer executable instructions, which when loaded onto ~~a data processor~~ the computer, configures the computer ~~data processor~~ to operate as an encoding data processing apparatus according to claim 1.

27. (Currently Amended) A computer readable medium encoded with a computer program providing computer executable instructions, which when loaded onto ~~a data processor~~ the computer, causes the computer ~~data processor~~ to operate as a detecting data processor according to claim 14.

28. (Currently Amended) A computer readable medium encoded with a computer program providing computer executable instructions, which when loaded on to ~~a data processor~~ the computer, causes the computer ~~data processor~~ to perform the method according to claim 21.

29-31. (Canceled)

32. (Currently Amended) An apparatus for generating at least one version of an original material item ~~of material~~, formed by introducing one of a predetermined set of code words into a copy of the original material item, the apparatus comprising

means for adapting a bandwidth of the code word with respect to a part of bandwidth of the original material item, and

means for combining the bandwidth adapted code word with a copy of the original material item, with an effect that the bandwidth adapted code word is combined with the part of the bandwidth of the original material item.

33. (Currently Amended) An apparatus as claimed in claim 32, wherein the means for adapting the bandwidth is ~~operable~~ configured to increase the bandwidth of the code word in accordance with a ratio of a reduced-bandwidth-version of the original material item to the

bandwidth of the original material item or part thereof with which the code word is to be combined.

34. (Currently Amended) An apparatus for determining whether one or more code words of a predetermined set of code words is present in a suspected version of a material item, the suspected version having been assumed to have been formed by combining a code word having a lower-bandwidth with respect to ~~the~~ a part of bandwidth of ~~the~~ an original material item, the apparatus comprising

means for forming a reduced-bandwidth-version of a copy of the original material item and a reduced-bandwidth-version of the suspected version ~~of the material~~, or a reduced-bandwidth-version of a difference between the original material item and the suspected version ~~suspect material items~~, the bandwidth reduction being arranged to isolate the part of the bandwidth of the original material item to which the code word may have been combined,

means for generating a recovered code word from the reduced-bandwidth-versions of the original material item and the suspected version, ~~suspect material items~~ or the reduced-bandwidth-version of the difference between the ~~suspect and~~ original material ~~items~~ item and the suspected version,

means for generating for each of the code words in the predetermined set of code words a correlation value by correlating the recovered code word with each of the generated code words, and

means for detecting one or more code words from the correlation value for the code word exceeding a predetermined threshold.

35. (New) An encoding data processing apparatus as claimed in claim 1, wherein the bandwidth adaptation processor is configured to convert the bandwidth of the code word to the part of the bandwidth of the original material item.

36. (New) A method as claimed in claim 21, wherein the adapting of the bandwidth of the code word comprises converting the bandwidth of the code word to the part of the bandwidth of the original material item.

37. (New) An apparatus as claimed in claim 32, wherein the means for adapting comprises means for converting the bandwidth of the code word to the part of the bandwidth of the original material item.